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Utility of Fern Test to Determine Rupture of Membranes

Wesley Eichorn
Western Michigan University Homer Stryker M.D. School of Medicine

Susan Jevert-Eichorn
Western Michigan University Homer Stryker M.D. School of Medicine

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Wesley Eichorn, DO; Susan Jevert-Eichorn, DO

Department of Family and Community Medicine

Introduction

The fern test was first described by Kardos and Tamasi in 1955 as a diagnostic test used to determine whether rupture of amniotic membranes had occurred. The test is done by collection of fluid from the vagina which is then allowed to dry for 10 minutes on a slide. The slide is then inspected with microscopy for evidence of ferning. Being able to determine whether rupture of amniotic membranes has occurred is important as it has significant implications on the management of obstetrical patients.

Case

EC is a 23 year old G1P0 at 40 and 3/7 weeks gestation who presented to an outpatient facility with a chief complaint of vaginal fluid leaking. Approximately 12 hours prior she had leaked sufficient vaginal fluid to wet her underwear, but not sufficient to soak through her pants. She denied any subsequent loss of vaginal fluid. A speculum exam was done with minimal amount of pooling noted in the vaginal vault. A sample of this fluid was obtained. Fern test was negative and vaginal pH was 4.5. Her history was concerning for premature rupture of membranes (PROM) so she was further evaluated with an Amnisure test which was positive. She was then admitted for induction of labor in light of PROM.

Discussion

The fern test has been noted to have a sensitivity as high as 100% with most studies reporting a sensitivity at least 90% or greater. These statistics can be very misleading as most of these studies have been done in patients who were in labor. The sensitivity of the fern test is much lower in patients who are not in labor. A more recent study reported a sensitivity of 51% with a specificity of 70% for detecting PROM in patients who are not in labor. It was noted that sensitivity was slightly higher and specificity slightly lower for medical students and residents when compared to gynecologists.

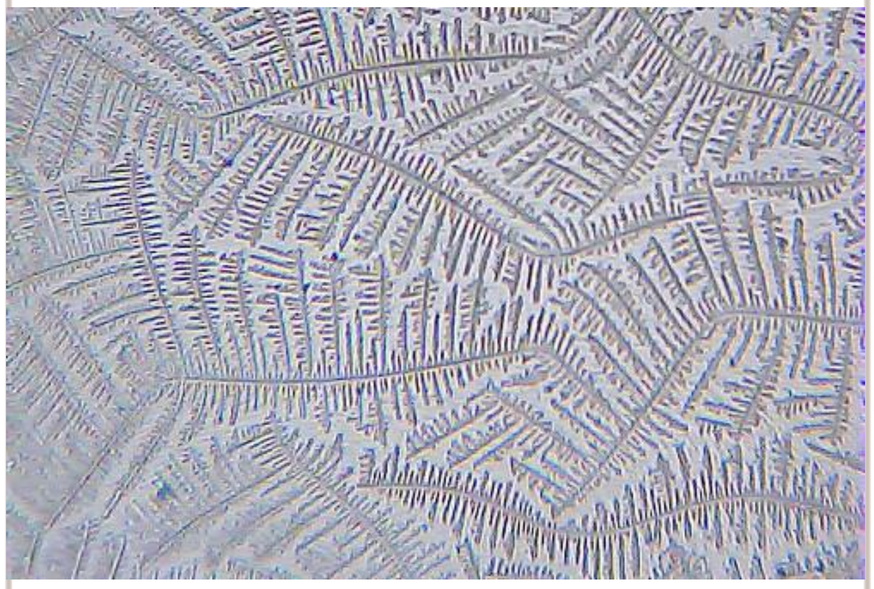

Figure 1: Example of ferning pattern under microscopy

The sensitivity of the Amnisure test has been reported to be 98 to 99% with specificity ranging from 88% to 100%. Rupture of membranes has previously been diagnosed either by visualization of fluid leaking from the cervical os or having 2 of the following: vaginal pooling, positive fern test, or positive nitrazine test.

Conclusion

The fern test should only be used as a supplement and should not be relied on to rule out rupture of membranes in a nonlaboring patient with clinical history suspicious for PROM.

References

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